

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 64-082671

(43)Date of publication of application : 28.03.1989

(51)Int.Cl.

H01L 29/78  
H01L 21/318

(21)Application number : 62-242134

(71)Applicant : NEC CORP

(22)Date of filing : 25.09.1987

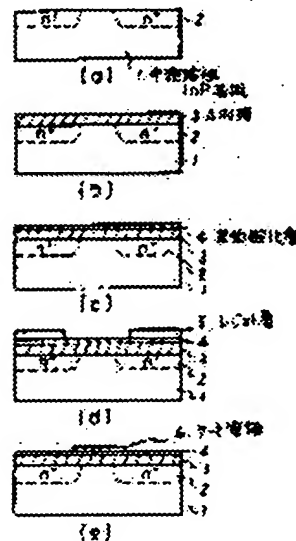
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## (54) MANUFACTURE OF MIS FIELD-EFFECT TRANSISTOR

### (57)Abstract:

**PURPOSE:** To improve reliability and to reduce irregularities in characteristics by forming an oxide layer as a protective film against a resist developer on an AlN film in a MIS FET having AlN as a gate insulating film on a III-V compound semiconductor substrate.

**CONSTITUTION:** An n<sup>+</sup> type layer 2 is formed by atomic layer epitaxial growth as a source and drain electrode contact layer on a semi-insulating InP substrate 1. Then, an AlN film 3 is formed as a gate insulating film by an organic metal vapor growing method on the substrate 1. Thereafter, the surface of the film 3 is exposed with an oxygen atmosphere at 100° C., thereby forming a surface oxide film 4 having 50Å of thickness. Subsequently, a photoresist pattern 5 for forming a gate electrode 6 is formed of positive type resist. Then, aluminum is deposited by a resistance heating method on the whole surface of a sample. Thereafter, the pattern 5 is removed to be lifted OFF, and a gate electrode 6 is formed. Then, it can prevent electric characteristics of the AlN and a boundary between the AlN and a semiconductor from being deteriorated with a resist developer.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]